

REMARKS/ARGUMENTS

Claims 1-55 were pending in the present application. The present response amends claims 1, 13, 28, 43, and 46, leaving pending in the application claims 1-55. Reconsideration of the rejected claims is respectfully requested.

I. Rejection under 35 U.S.C. §103

Claims 1-55 are rejected under 35 U.S.C. §103(a) as being obvious over *Nikoonahad* (US 6,628,397).

Nikoonahad teaches a “self-clearing objective” for “performing optical measurements on surfaces that are obscured by debris.” The “self-clearing objective” utilizes a “substantially transparent fluid” flowing across the objective “between the optical element and the sample such that at least a portion adjacent to the sample is substantially cleared of debris” (col. 1, lines 6-9; col. 2, lines 9-64; Figures 2-4). *Nikoonahad* directs a fluid across the optical element in order to prevent debris such as “slurry and film residue” from collecting on the element or obscuring the view of the wafer (col. 1, lines 11-58).

Applicants’ independent claims 1, 13, 44, and 53 recite a device or method defined by the introduction of a flow of purge gas at an injection point adjacent the measurement position, such that the purge gas flow travels radially from near the measurement position. The purge gas flow then can be exhausted at a periphery of the sample. In this way, the purge gas always flows away from the measurement position in the bounded volume in order to improve the measurement of the optical metrology instrument. *Nikoonahad* does not teach or suggest such an arrangement. *Nikoonahad* instead directs a fluid flow across an optical element, with at least a portion of the flow directed toward a measurement position of the optical element. When the fluid flows toward the measurement position, particles can be moved into the measurement position of the optical element that can negatively affect the measurement. Further, there is no teaching or suggestion in *Nikoonahad* that a slurry or film residue can be exhausted at a periphery of a sample with any likelihood of success, or teaching of how to deal with such a peripheral exhaust. In fact, in embodiments where the measurements are being made in-situ, the fluid flow cannot be exhausted at the periphery of the sample, as the slurry is occupying that space (see for example Fig. 2). *Nikoonahad* therefore cannot render Applicants’ claims 1, 13, 44, and 53 obvious.

Applicants' independent claims 28, 43, and 46 recite a device or method defined by the introduction of a purge gas flow adjacent the measurement position that is exhausted at the periphery of the sample. Again, the purge gas always flows away from the measurement position in the bounded volume. As discussed above, *Nikoonahad* does not teach or suggest such an arrangement, as *Nikoonahad* instead directs a fluid flow across an optical element, with at least a portion of the flow directed toward a measurement position of the optical element. There is no teaching or suggestion in *Nikoonahad* that a slurry or film residue can be exhausted at a periphery of a sample with any likelihood of success, or teaching of how to deal with such a peripheral exhaust. Also as discussed above, the fluid flow cannot be exhausted at the periphery of the sample where the measurements are being made in-situ, as the slurry is occupying that space (see for example Fig. 2). *Nikoonahad* therefore cannot render Applicants' claims 28, 43, and 46 obvious.

Applicants' independent claim 50 (corresponding to Applicants' Figure 1 and described at p. 4, line 21 - p. 5, line 7, for example) recites first and second hollow members through which light from a light source is channeled to an aperture in the face plate and reflected from the sample to the detector, as well as a source of purge-gas which is directed through the hollow members. *Nikoonahad* does not teach or suggest such limitations, as *Nikoonahad* fails to teach or suggest first and second hollow members for channeling light, through which a flow of purge gas is directed. As discussed above, *Nikoonahad* instead directs a liquid flow across an optical element, which is separate from the light path (see Figures 1 and 2). *Nikoonahad* therefore would not function to purge the incident and reflected light paths, and provides no motivation to do so. As such, *Nikoonahad* cannot render Applicants' independent claim 50 obvious.

For reasons including those discussed above, Applicants respectfully submit that independent claims 1, 13, 28, 43, 44, 46, 50, and 53 cannot be rendered obvious by *Nikoonahad*. Similarly, dependent claims 2-12, 14-27, 29-42, 45, 47-59, 51-53, and 54-55, which depend from these claims, cannot be rendered obvious. Applicants therefore respectfully request that the rejection with respect to claims 1-55 be withdrawn.

II. Amendment to the Claims

Unless otherwise specified, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the specification and do not add new matter to the specification.

III. Conclusion

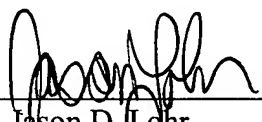
In view of the above, it is respectfully submitted that the application is now in condition for allowance. Reconsideration of the pending claims and a notice of allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-1703, under Order No. TWI-13510. **A duplicate copy of the transmittal cover sheet attached to this Response to Office Action Mailed December 16, 2003, is provided herewith.**

Respectfully submitted,

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By:  _____

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